Dr. Uhlig, increased since 1901. Thus the report indicates that the retreat of glaciers, which began about forty-five years ago, still continues, having overpowered the slight rally which has been occasionally perceptible during the last decade. T. G. B.

THE REVOLUTION OF THE CORPUSCLE.[1]

Air: "The Interfering Parrot." (*Geisha.*)

A corpuscle once did oscillate so quickly to and fro,
He always raised disturbances wherever he did go.
He struggled hard for freedom against a powerful foe—
An atom—who would not let him go.
The æther trembled at his agitations
In a manner so familiar that I only need to say,
In accordance with Clerk Maxwell's six equations
It tickled people's optics far away.
You can feel the way it's done,
You may trace them as they run—
$d\gamma$ by dy less $d\beta$ by dz is equal $K.dX/dt$.
. . . .
. . . .
While the curl of (X,Y,Z) is the minus d/dt of the vector (a,b,c).

Some professional agitators only holler till they're hoarse,
But this plucky little corpuscle pursued another course,
And finally resorted to electromotive force,
Resorted to electromotive force.
The medium quaked in dread anticipation,
It feared that its equations might be somewhat too abstruse,
And not admit of finite integration
In case the little corpuscle got loose.
For there was a lot of gas
Through which he had to pass,
And in case he was too rash,
There was sure to be a smash,
Resulting in a flash.
Then $d\gamma$ by dy less $d\beta$ by dz would equal $K.dX/dt$.
. . . .
. . . .
While the curl of (X,Y,Z) would be minus d/dt of the vector (a,b,c).

The corpuscle radiated until he had conceived
A plan by which his freedom might be easily achieved,
I'll not go into details for I might not be believed,
Indeed I'm sure I should not be believed.
However, there was one decisive action,
The atom and the corpuscle each made a single charge,
But the atom could not hold him in subjection
Though something like a thousand times as large.
The corpuscle won the day
And in freedom went away
And became a kathode ray.
But his life was rather gay,
And he went at such a rate,
That he ran against a plate;
When the æther saw his fate
Its pulse did palpitate,
And $d\gamma$ by dy less $d\beta$ by dz was equal $K.dX/dt$.
. . . .
. . . .
While the curl of (X,Y,Z) was the minus d/dt of the vector (a,b,c).

NOTES.

DR. N. L. BRITTON, director of the New York Botanical Garden, has been elected president of the New York Academy of Sciences.

DURING the meeting of the French Association for the Advancement of Science, to be held at Lyons next August, it is proposed, if the suggestion arouses sufficient interest, to arrange an exhibition of urban hygiene.

THE Brussels correspondent of the *Daily Telegraph* states that at the last meeting of the Academy of Science it was announced that Dr. Jacobs had conclusively proved cancer to have a bacterial origin. This is not the first time that similar positive statements have been made which subsequent research has proved to be fallacious, and all such reports must be received with the greatest reserve.

THE Morrison lectures of the Royal College of Surgeons, Edinburgh, have this year been delivered by Dr. Ford Robertson on the pathology of general paralysis of the insane. The main theme of Dr. Robertson's lectures is that general paralysis is an infective or germ disease caused by certain diphtheroid bacilli, which can be isolated from the blood and cerebro-spinal fluid of the patient, and the toxins of which by their action on the central nervous system induce the paralysis and other symptoms.

THE Milroy lectures of the Royal College of Physicians of London will be delivered by Dr. W. H. Hamer on March 1, 6, and 8, the subject being "Epidemic Disease in England: the Evidence of Variability and of Persistency of Type." The Goulstonian lectures will be delivered by Dr. H. Batty Shaw, on the subject of "Autointoxication," on March 13, 15, and 20; the Lumleian lectures by Dr. Ferrier, the subject being "On Tabes Dorsalis," on March 22, 27, and 29; and the Oliver-Sharpey lectures by Dr. E. J. Spriggs on April 3 and 5, the subject being 'The Bearing of Metabolism Experiments upon the Treatment of some Diseases." Prof. W. Osler will deliver the Harveian oration on St. Luke's Day, October 18, and Dr. S. J. Sharkey the Bradshaw lecture in November.

THE annual general meeting of the Iron and Steel Institute will be held on Thursday and Friday, May 10–11. The council will shortly proceed to award Carnegie research scholarships, and candidates must apply before February 28. The awards will be announced at the general meeting. In place of the ordinary autumn meeting, a joint meeting of the American Institute of Mining Engineers and of the Iron and Steel Institute will be held in London on July 23–29. The Lord Mayor of London has consented to act as chairman of the London reception committee, and will give a conversazione at the Mansion House on the evening of July 24. The annual dinner will be held at the Hotel Cecil on Friday, July 27. A programme of the visits and excursions to be made during the meeting will be issued when the arrangements are sufficiently matured.

THE death is announced, at the age of eighty-three, of M. Jules Despecher, who for more than half a century played a prominent part in organising and arranging submarine cable services.

THE commission for the methods of examining and methylating alcohol, appointed by the French Government, has decided to offer the following prizes for open competition, irrespective of the nationality of the competitors:—(1) a prize of 20,000 francs for a method of methylating alcohol, which shall be preferable to that now in vogue in France, and which at the same time shall prevent any defrauding of the revenue; and (2) a prize of 50,000 francs for a system which shall permit of the use of alcohol for illuminating purposes under the same conditions as those for the use of petroleum. Further details and particulars may be obtained from the commission (though not before April), which body will itself decide to whom the awards shall be made.

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[1] Composed by Mr. A. A. Robb and sung at the annual dinner of the research students of the Cavendish Laboratory, Cambridge, on December 6, 1905.

THE programme of the sixth International Congress for Applied Chemistry has recently been issued. The congress will be held in Rome from April 26 to May 3. On April 25 there will be a social gathering of those taking part in the congress, preparatory to the official opening on the following day; on the afternoon of the same there will be the first full committee meeting for the election of next year's officers. On April 27 the sittings of the various sections will begin, and will be continued on April 28 and 30, and on May 1 and 2. For Sunday, April 29, an excursion into the outskirts of Rome has been arranged. On May 3, after the final committee meeting, there will be two excursions, the one to the Island of Elba, and the other to Sicily. During the first, visits will be paid to the iron mines and works of Elba, whilst for the second arrangements have been made for visits to the saltworks of Erapani, the wine factories of Marsala, and the sulphur mines of Messina; but since the two excursions are taking place simultaneously, members of the congress may only participate in one of the two. All members will be entitled to reductions of from 40 per cent. to 60 per cent. on tickets issued by the State railways, according to the distances travelled.

THE Philosophical Institute of Canterbury, Christchurch, N.Z., has opened a fund with the object of establishing a memorial to the late Captain F. W. Hutton, F.R.S., president of the New Zealand Institute. It is proposed to devote the fund to the encouragement of original research in natural science in New Zealand by making grants from time to time to persons engaged in original research, and by the award of a bronze medal, to be called the "Hutton medal," for original contributions of special value. In the appeal for support, the memorial committee remarks:—"The influence and importance of research are becoming more and more fully recognised in all parts of the world, but New Zealand has as yet taken no steps for its encouragement, and no financial assistance has so far been given to private workers in any department of science. It is hoped, therefore, that advantage will be widely taken of the present opportunity of contributing to a fund which will encourage research, and will at the same time perpetuate the memory of Captain Hutton, who so unselfishly devoted himself throughout his lifetime to the advancement of natural science in New Zealand." Though the Philosophical Society has taken the matter in hand in order to save time, and has subscribed 50*l*., the board of governors of the New Zealand Institute will probably be asked to take over the work of collecting the funds required. Meanwhile, subscriptions may be sent to Dr. Chilton, Canterbury College, Christchurch, N.Z., who is acting as hon. treasurer of the fund.

FROM the *British Journal of Photography* (January 26) we read that an international exhibition of photography is to be held this summer at Paris at the Petit Palais, in the Champs Elysées, and will be open from July 16 to October 10. Judging even by the brief statement given, the exhibition will be on a very large scale, there being thirteen groups of exhibits, comprising altogether sixty-three classes. A list of the groups is as follows:—History of photography; applications of photography to science; educational; amateur and pictorial photography; photographic periodicals; professional photography; photographic publications; photographic materials; apparatus and accessories; photo-mechanical processes; industries related to photography; leather dressing; photographic illustrations; and the photographic trade. Such a comprehensive programme will, we hope, bring together workers in all sections, and include a strong British exhibit. In the second group the exhibition is assured the support of a large number of scientific institutions in France and other countries, including the Collège de France, the Museum of Natural History (Paris), the Paris National Observatory, the physiological station at the Parc du Princes, the Marey Institute, the Institute Pasteur, the Faculté de Médecine, the Sorbonne, the School of Pharmacy, the School of Mines, the Smithsonian Institution (Washington), the meteorological observatories of France, and many others. It is stated that the last day for receiving applications for space is fixed for February 25 next, and that an English (?British) committee is in formation. It may finally be stated that no charge is made for exhibits coming under the head of the first three groups.

AMONG the contents of Nos. 24–27 of the *Sitzungsberichte* of the Royal Academy of Vienna for last year is a notice of Hymenoptera obtained during an expedition to south Arabia, and a summary of the zoological results of another expedition to the Sudan and Gondokoro. In a third paper Mr. A. Handlirsch discusses the phylogeny of the Arthropoda.

IN the course of a paper on the natural history of the Warburton district, published in the December (1905) number of the *Victorian Naturalist*, the author mentions that frigate-birds are used in the South Sea Islands as letter-carriers. If captured young, they will return, like homing pigeons, to the island of their birth, and, taking advantage of this trait, the missionaries forward such birds to islands with which they desire to hold communication. When released from their new domicile they fly straight to their old home, where they alight on the identical perches on which they were accustomed to be fed. Later on it is mentioned that diamond-tailed geckos (*Phyllurus platurus*) are always found head-downwards on the rocks they frequent. They assume this position, according to the author, in order to make hawks believe that their heads are their tails; consequently, when seized by one of these birds, which invariably pounce upon what they regard as the head, the brittle tail snaps off, and the gecko wriggles away little or none the worse for the encounter.

WE are glad to welcome the volume of the *Zoological Record* for 1904, which from its bulk bears testimony to the energy with which natural history studies are being carried on both in this country and abroad. A few changes have been made in the staff, but in the main the old contributors have remained at their posts. Errors, as usual, appear to be comparatively few, and in many cases are excusable. We notice, however, that the genus Lohmannella (spelt with a single *n*) appears among the mites, as well as (in its proper place) among the Vermes. In the myriopod section, which is written by a foreigner, the editor might well have amended the style of such names as Kaukasus, Wladiwostok, and Eastromelia, while in the Bryozoa he might have noticed that Miss Embleton gives "Memoirs of the Geological Survey of India" as the title of a paper. Again, in the bird section (p. 30) we find the same paper quoted twice over, on account of the fact that it appeared in two different journals. In congratulating the editor and his staff on their successful labours, we may refer to the fact that they record the appalling total of no less than 2095 new generic and subgeneric names as the result of a single year's work!

IN the *Scientific Reports* of the Imperial Cancer Research Fund (No. 2, 1905) a valuable series of experiments and observations on the growth of cancer under natural and experimental conditions is detailed by Dr. Bashford and his co-workers. The statistical investigation of cancer has also been pursued, and a valuable report is presented. The provisional conclusion is arrived at that there is nothing in the statistical investigations of the Imperial Cancer Research Fund which points to an actual increase in the death-rate from cancer.

IN an interesting article in the *Quarterly Review* (January) Dr. George Pernet reviews the light-treatment of disease, with which the honoured name of the late Dr. Finsen, of Copenhagen, will always be associated. The action of the various rays of the visible and invisible spectrum on the lower forms of life is first detailed, and it is shown that the violet and ultra-violet rays are the active ones, and it is these which are employed for the treatment of lupus. At the same time, it must be recognised that light-treatment has its drawbacks; it is costly, slow in action, and does not influence all forms of the disease, particularly if at all below the surface, since the active rays have little power of penetration. It has recently been observed, however, that if the tissues be first treated with some fluorescent substance, such as eosin, the penetrative powers of the active rays are increased, and this fact may prove to be of practical value. Lastly Dr. Pernet points out that as lupus is a form of tuberculosis, the eradication of the disease is intimately connected with the larger question of the eradication of tuberculosis in general.

A LIST of pyrenomycetous fungi collected in Orleans County, New York, has been prepared by Mr. C. E. Fairman, and is published in vol. iv. of the *Proceedings of the Rochester Academy of Science, U.S.* A number of species are recorded for the first time for the State, and five are new to science.

UNDER the title of "Mesozoic Plants from Korea," Mr. H. Yabe contributes to vol. xx. of the *Journal of the College of Science*, Tokio University, a paper on fossil botany dealing with the collections obtained from a bed of coal shale in the vicinity of Naktong, a village near Sengchu. Twenty-one species, mostly ferns, but including a few cycads and conifers, are distinguished. From the similarity of several of these with species recorded from the Japanese Tetori series, the writer judges that the beds were formed contemporaneously; he also suggests that the plant-bed of Naktong was deposited as a beach formation in shallow brackish water.

IN connection with the fine avenues of trees at Quetta referred to in NATURE of January 11, p. 253, Mr. E. P. Stebbing has been investigating the ravages of a beetle, *Æolesthes sartus*, that has locally received the name of the "borer." In a pamphlet printed by the Government of India, Mr. Stebbing sketches the salient points in the life-history of the insect. The damage is caused principally by the larvæ, that feed first in the phloem and sap-wood of the tree, and subsequently penetrate during the winter into the heart-wood. The trees that have suffered most have been the Kabul willow, the reamer poplar, and the elm; the walnut, horse-chestnut, ash, and robinia have escaped entirely or nearly so, and, curious to relate, the mulberry has not been attacked.

THE members of the Botanical Society of Edinburgh receive from time to time at their meetings interesting announcements of the discovery of rare plants found during summer excursions. Mr. J. G. Nicolson publishes in vol. xxiii., part i., of the *Transactions and Proceedings* of the Society a list of some rare Caithness plants, that includes *Arctostaphylos alpina*, collected on Mt. Morven, *Hierochloe borealis* from Thurso, and a strange alien, *Hymenaea Courbaril*, known as the West Indian locust, washed up by the Gulf Stream near John-o'-Groats. Mr. W. Young, writing on the plants of the Glenshee district, Perthshire, reports the occurrence of *Gentiana nivalis*, *Veronica alpina*, and *Cochlearia Groenlandica* among flowering plants on or near Glas Maol; among the liverworts gathered in the district were *Cephaloziella Jackii*, *Lophozia socia*, and *Harpanthus Flotowianus*. The volume contains the latest of many papers by Mr. W. West and Prof. G. W. West on algæ, in which they describe the fresh-water algæ collected in the Orkneys and Shetlands; their list enumerates more than four hundred species—a large number being desmids and diatoms—of which several are new species or varieties.

THE order Bombacaceæ, united by Hooker with Malvaceæ, includes, besides the baobab, several remarkable trees, of which the "silk-cotton" trees are a prominent feature in the tropics. Two genera pass by this name, Bombax and Ceiba, or, as it is known in this country, Eriodendron. At Nassau, in the Bahamas, there is a historic giant silk-cotton tree that is assigned to *Eriodendron anfractuesum* in an enumeration of the plants of the Bahamas. The illustration here reproduced is taken from *Forest and Stream*, January 13, and shows the remarkable formation of plank-like outgrowths, produced from the base of the trunk and the uppermost roots, that have received the name of plank-buttresses. The plank-buttress is a peculiarity of trees growing in a tropical climate with abundant rainfall.

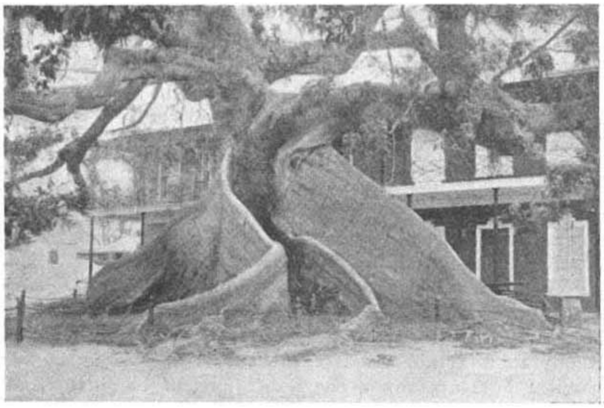
FIG. 1.—The Giant Ceiba Tree of Nassau—one of the famous trees of the World.

MR. AUDOIN contributes an interesting paper on the hydrography of Lake Tchad to *La Géographie* (vol. xii., No. 5). Recent observations of the volume of tributary streams and the area of the lake are analysed and applied to the examination of the question of the gradual desiccation of the region.

MR. MARQUARDSEN contributes a valuable and complete summary of the history of geographical exploration in the Lake Tchad region down to the year 1905 to the new number of the *Mitteilungen aus den deutschen*

Schutzgebieten (vol. xviii., part iv.). With this number is issued a new map of the region, and also a map of Togoland on a scale of 1 : 200,000.

PROF. H. FISCHER and Prof. F. Guillotel write in the *Zeitschrift* of the Berlin Gesellschaft für Erdkunde (No. 10, 1905) and in *La Géographie* (vol. xii., No. 4) on the position of geography, and the teaching of geography, in the United States. In both papers there is much to interest and stimulate teachers of the subject in this country. We note with pleasure the well deserved tribute which both writers pay to the work of Prof. W. M. Davis.

WE have received the annual number for 1905 of *Mazama*, the publication of the well known American mountaineering club. Mr. Henry Gannett contributes a paper on Lake Chelan and its glacier, and Mr. H. F. Reid describes the glaciers of Mount Hood and Mount Adams. The rest of the number is chiefly devoted to accounts of the work of the club during the year. Some of the photographs illustrating the "Rainier outing" are of great excellence.

THE director of the new Japanese Meteorological Service of Corea, Mr. Y. Wada, has lost no time in searching for and publishing the results of observations existing in that country. The Journal of the Meteorological Society of Japan for November last contains summaries of rainfall observations for the years 1896–1904 discovered at Seoul, and compiled in the Chinese language by a Mr. Li. The mean annual rainfall is about 35·4 inches, of which nearly 25 inches fall in the three summer months; July has an average fall of 11·3 inches, and December only 2·8 inches. The greatest daily falls occur in June and July, and exceed 5 inches on rare occasions. Rain falls, on an average, on 94 days in the year, and snow on 19 days.

MR. J. R. SUTTON has communicated to the *Transactions of the South African Philosophical Society* (vol. xvi., part ii.) a useful paper entitled "Some Results of Observations made with a Black Bulb Thermometer *in vacuo*." Mr. Sutton states that the object of the investigation was chiefly to ascertain some of the effects of various meteorological influences upon the indications of the instrument, not to discuss its suitability for the purposes of physical research. We are glad to see, however, that he does not share the opinion that has been sometimes expressed by high authorities of the untrustworthiness of the black bulb thermometer. We think it has been recently shown that good instruments, after use for some years, give fairly accurate comparative results, and, this being the case, their indications afford useful observations which cannot otherwise be obtained at ordinary meteorological stations. The author's observations show *inter alia* that at Kimberley the differences between the maxima in sun and shade increase with fair uniformity from winter to summer, the temperature in the sun increasing faster than that in the shade. A monthly comparison of various elements for four years shows that there is not any very obvious relation between the solar temperature and either the state of the sky or the hygrometric condition of the air, except, roughly, that the amount of cloud is least and the temperature of the dew-point lowest in winter, when the black bulb temperatures are lowest and the difference of maxima least. The elements arranged in a sequence of cloud percentages show that the temperature in the sun is at its highest when the sky is half clouded. Mr. Sutton thinks this seems to indicate that when the sky is more than half covered the clouds are as likely to shut off the solar heat as to impede radiation from the thermometer. We are unable in this brief notice to refer to various other points of interest in the paper.

THE paper on worm contact read by Mr. Robert A. Bruce before the Institution of Mechanical Engineers on January 19 throws much light on the actions involved with worm gearing. Many writers have contributed to the theory of the subject, but hitherto experimental investigation has been singularly incomplete. Some of the most interesting aspects of the question are dealt with by the author, but further research work is necessary before a complete account of the action of worm-gearing can be drawn up. The author's paper will prove a valuable guide to students of applied mechanics, and forms a welcome addition to the proceedings of the Institution of Mechanical Engineers.

THE presidential address of Prof. J. F. Kemp to the New York Academy of Sciences is printed in full in *Science* of January 5. It deals in a popular manner with the genesis of mineral veins. Ores, he shows, gather along subterranean waterways. They may fill clean-cut fissures; they may impregnate porous rocks on either side; or they may replace entirely soluble rocks. As to the source of the water that accomplishes these results there has been much discussion, the crucial point relating to the relative importance of the two kinds of ground-waters, those from the molten igneous rocks and those derived from the rains. The author inclines to regard the latter, if not as the sole vehicle of introduction, as the preponderating one.

IN the current issue of the *Engineering Magazine* (January) there is an interesting account of the first attempt of the United States Government to develop a source of fuel supply in the Philippines, where the economic conditions are favourable, inasmuch as nothing in the shape of a competing private coal-mining industry is established there. Owing to the high calorific power of the coal available, and to the fact that there is an ideal harbour adapted for a coaling station, the small island of Batan was selected as the site for the Government coal mines. The coal is of Eocene age, and the greatest normal thickness of any seam on the island is 8 feet. The coal yields 40 per cent. of volatile constituents and 4 per cent. to 7 per cent. of ash, whilst the fixed carbon in several cases exceeds 50 per cent. The author of the paper, Mr. O. H. Reinholt, was in charge of the development, and the numerous illustrations he gives are reproduced from photographs taken by himself.

MR. CONSUL STEVENS, in his report on agriculture in the Trans-Caucasus for the year 1905, refers, writes a contributor to the *Journal of the Society of Arts*, to the ravages of locusts. The fields situated along the stretch of land north and south of the river Kura are often visited by this insect at a season of the year when, in view of the forward state of the crops, their presence proves most disastrous to the population. The Government has for some years been paying much attention to the destruction of locusts, and with this object in view has endeavoured to encourage the peasants to destroy locusts' eggs, or the larvæ. Accordingly the peasants dig holes or trenches, and during the months of June and July the villagers go out into the fields and drive the larvæ into the trenches. This measure has been crowned with a certain amount of success during the present season, and the havoc done to the crops by locusts has thereby been reduced to a minimum. No fewer than 13,905,276 days' *corvée* work was done between the years 1898 and 1904 in destroying locusts in the Sir.

Darya, Samarkand, Ferghana, Semirechi, and Trans-Caspian districts. This in itself shows the immense sacrifices the natives are called upon by the authorities to make in connection with the destruction of locust eggs. Between the years 1900 and 1905 the rural authorities of those localities paid away sums to the amount of 80,000*l.* for the destruction of locusts, and yet during this period the crops in Central Asia were damaged to the extent of 150,000*l.* by this insect.

THE publication in NATURE of December 7, 1905 (p. 132), of some verses on the passing of the atom, sung at the chemical laboratory dinner at University College, London, has induced Mr. F. Horton, St. John's College, Cambridge, to send us a copv of the post-prandial proceedings of the Cavendish Society, containing several metrical compositions inspired by recent work on ions and radio-activity. Songs of this kind are sung at the Cavendish research students' annual dinner, which is held at the end of each Michaelmas term; and the one by Mr. A. A. Robb reprinted elsewhere in this issue is a good example of versification in science.

IN two recent papers, the one by Mr. D. Himstedt and Mr. G. Meyer, published in the *Berichte* of the Freiburg Scientific Society (1905, vol. xvi., p. 13), and reprinted in *Le Radium* (vol. ii., No. 12), the other by Prof. B. Walter and Mr. R. Pohl (*Annalen der Physik,* iv., 18, 406), experimental evidence is brought forward to show that the light ordinarily emitted by radium bromide is principally due to the impact of the Becquerel rays on the particles of nitrogen in the immediate vicinity. The probability of this being the case was suggested by Sir William and Lady Huggins in 1903, although the latter were unable then to obtain direct evidence in support of their view.

AN important paper by Prof. A. W. Witkowski on the thermal dilatation of compressed hydrogen is published in the *Bulletin International* of the Cracow Academy of Sciences (1905, No. 6). Full details are given of the methods employed in determining the values, already published in a brief report to the British Association in 1904, of the volume coefficient of dilatation of hydrogen at temperatures ranging from +100° to −190° C. under pressures of 1–60 atmospheres. The results are used in discussing Wroblewski's calculation of the critical temperature and pressure of hydrogen, a subject which is also dealt with experimentally by Prof. Olszewski in the following number of the Bulletin (1905, No. 7). The critical pressure was found in a new determination to be 13·4–15 atmospheres, the critical temperature being −240°·8 C. Prof. Olszewski also describes in No. 7 an unsuccessful attempt to liquefy helium by allowing it to expand suddenly, after cooling to −259° C. by means of solid hydrogen, from a pressure of 180 atmospheres. Not a trace of liquefaction could be observed at the temperature obtained in this way, which is calculated to be as low as −271°·3 C., or 1°·7 absolute.

AT the last meeting of the physical-mathematical section of the Berlin Academy of Science, held under the presidency of Prof. Waldeyer, Prof. Landolt epitomised the results of his extensive experiments on the question of the possible change of weight caused by chemical action, and stated that he had obtained confirmation of many previous observations of a decrease in weight as a result of certain reactions, and that he had started further experiments with the view of discovering the cause of such changes. Prof. van 't Hoff gave a further contribution to his series of papers on natural salt formations, xlv., the occurrence of tincal and octahedral borax. In collaboration with Blasdale he had observed that the appearance of octahedral borax in Italy was dependent upon a minimum temperature of about 35°·5 C. Prof. Waldeyer read a communication from Dr. A. Sachs, of Breslau, on kleinite, a hexagonal mercury oxychloride from Terlingua, in Texas. This mineral, to which the formula $Hg_4Cl_2O_3$ is given, is a third addition to the other two mercury oxychlorides previously found in this district, namely, eglestonite, $Hg_6Cl_3O_2$, belonging to the regular system, and the monoclinic terlinguaite, Hg_2ClO.

THE real existence of the *n*-rays, discovered by M. Blondlot, has been the subject of much discussion, there being a general consensus of opinion outside France that the effects produced are physiological. The *Comptes rendus* for January 15 contain two papers of considerable interest on this subject. The first of these, by M. Mascart, gives details of a series of measurements of the points of maximum intensity in the spectrum produced by the refraction of the *n*-rays through an aluminium prism, by a number of independent observers. The phosphorescent screen was mounted on the carriage of a dividing engine, and each of four observers (Messrs. Blondlot, Gutton, Virtz, and Mascart) made independent measurements of the points of maximum intensity. The most concordant figures were those obtained by M. Blondlot, but the general agreement of the results left no doubt as to the position of the lines. M. Mascart gives the results without comment. The second paper, by M. Gutton, is an attempt to prove the objective existence of the *n*-rays. It had been noted that if these rays are allowed to fall on the primary spark of a Hertzian oscillator, the lustre of the secondary spark diminishes. This effect has been secured photographically, the difference being clearly marked in the whole of the thirty-seven experiments. The apparatus is described in detail, and the precautions necessary for success pointed out. These two papers certainly provide material for consideration by those who maintain that the whole phenomenon is a physiological illusion.

PROF. HENRI MOISSAN has continued his experiments on the fusion and volatilisation of the more refractory metals in the electric furnace, and gives an account of his results in the current number of the *Comptes rendus* (January 22). In the first experiment, made with osmium, the temperature obtained by using a current of 500 amperes at 110 volts, although sufficient to distil 16 per cent. of the metal in four minutes, was not sufficient to melt the metal, except at the edges. Osmium was entirely fused with a current of 700 amperes at 110 volts in five minutes, but the fused metal contained nearly 4 per cent. of graphite. Under the same conditions of current and voltage as in the second experiment above mentioned, 150 grams of ruthenium were completely melted in three minutes, about 11 per cent. being distilled during the fusion. The fused ingot of ruthenium also contained graphite. Platinum could be distilled in the same furnace with great ease, and, indeed, Prof. Moissan remarks:—"The liquid metal distils with the same facility as water carried to 100° C." Palladium, iridium, and rhodium were also fused and distilled without difficultv, palladium being the easiest metal to fuse of all those examined in this group.

A SUMMARY of the weather for 1905 at Sevenoaks has been received from Mr. W. W. Wagstaffe.

MR. H. K. LEWIS's quarterly list of new books and new editions added to his Medical and Scientific Library (136 Gower Street, W.C.) during the last three months of 1905 includes more than 150 titles of books, above 30 of which are in the chemical, engineering, and electrical departments of the library.

THE "Writers' and Artists' Year-book" for 1906 has now been published by Messrs. A. and C. Black. It contains much information likely to be of assistance to writers on all subjects. The list of papers and magazines, good though it is, is by no means complete; for though details concerning *Science Siftings* are supplied, we have been unable to find any mention of the *Chemical News,* the *Entomologist*, the *Irish Naturalist*, and the *Zoologist*. The price of the year-book is 1*s*. net.

MESSRS. ARCHIBALD CONSTABLE AND CO., LTD., have ready for publication immediately the following books of scientific interest:—"Motor Vehicles and Motors," vol. ii., by W. Worby Beaumont; "Tunnel Shields and the Use of Compressed Air in Subaqueous Works," by W. C. Copperthwaite; "Modern Turbine Practice and Water Power Plant," by J. W. Thurso; "The Seven Follies of Science," by J. Phin; "Experimental Electro-chemistry," by N. Monroe Hopkins; "Gas, Gasolene, and Oil Engines" (new edition), by G. D. Hiscox; and "Practical Electro-chemistry" (second edition), by B. Blount.

THE twenty-sixth issue of the "Englishwoman's Year-book and Directory," that for 1906, has been published by Messrs. A. and C. Black. It maintains the high level of usefulness to which attention has on previous occasions been directed in these columns. Englishwomen anxious to take part in the useful work of the world owe a debt of gratitude to Miss Emily Janes, who edits the volume. Great prominence is, as usual, given to education, and the information given concerning the higher education of women is exhaustive and interesting. An alphabetical list of some distinguished women with their contributions to science and education should serve to encourage others to assist in the spread of knowledge.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN FEBRUARY:—

Feb. 2.	5h. Jupiter in conjunction with the Moon. Jupiter 4° 39′ N.
,, 3.	5h. 23m. to 6h. 28m. Moon occults α Tauri (mag. 1·1).
,, 4.	10h. 6m. to 12h. 6m. Transit of Jupiter's Sat. III. (Ganymede).
,, 5.	Juno (mag. 8·7) in opposition to the Sun.
,, 7.	7h. 7m. to 8h. 4m. Moon occults ζ Cancri (mag. 4·7).
,, 7.	9h. 33m. Minimum of Algol (β Persei).
,, 8.	Total eclipse of the Moon.
	17h. 57m. First contact with the shadow.
	18h. 58m. Beginning of total phase.
	19h. 47m. Middle of the eclipse.
	20h. 36m. End of total phase.
	21h. 37m. Last contact with the shadow.
	19h. 30m. Moon sets at Greenwich.
	Magnitude of the eclipse = 1·632.
,, 10.	6h. 22m. Minimum of Algol (β Persei).
,, 10.	11h. 7m. to 12h. 12m. Moon occults χ Leonis (mag. 4·7).
,, 14.	Venus. Illuminated portion of disc = 1·000. Of Mars = 0·944.
,, 16.	Juno ½° S. of ζ Hydræ (mag. 3·3).
,, 22.	19h. 43m. Partial eclipse of the Sun, invisible at Greenwich.
,, 24.	11h. Saturn in conjunction with the Sun.
,, 28.	7h. 0m. to 8h. 9m. Moon occults μ Ceti (mag. 4·4).

DISCOVERY OF A NEW COMET.—A telegram from the Kiel Centralstelle announces the discovery of a new comet by M. Brooks at Geneva on January 26. Its position at 10h. (Geneva M.T.) on that date was

R.A. = 16h. 19m. 28s., dec. = +47° 10′,

which is near to τ Herculis.

The object is said to be a bright one, and to be moving in a north-westerly direction. Being the first comet to be discovered during the year, it will take the designation 1906*a*. At 9 p.m. τ Herculis is fairly low down, near to the N.N.E. horizon, and does not "south" until about 7.30 a.m.

A second telegram from Kiel states that the comet was observed by Dr. Palisa at Vienna on January 28. Its position at 15h. 13·3m. (Vienna M.T.) was

R.A. = 16h. 18m. 16·4s., dec. = +50° 4′ 45″.

From this it appears that the comet is at present travelling nearly due north towards the constellations Draco and Ursa Minor.

COMET 1905*c* (GIACOBINI).—As comet 1905*c* is now emerging from the immediate neighbourhood of the sun and is fairly bright, it should soon become visible in the evening sky, immediately after sunset, and in the south-west. The following is an extract from a daily ephemeris published by Herr A. Wedemeyer in No. 4067 of the *Astronomische Nachrichten*:—

Ephemeris 12h. M.T. Berlin.

1906	α (true) h. m. s.	δ (true) ° ′	log *r*	log Δ
Feb 1	22 18 6	−25 9	9·6110	0·0616
3	22 40 39	−24 17	9·6634	0·0616
5	23 1 53	−23 9	9·7099	0·0633
7	23 21 49	−21 50	—	—
9	23 40 24	−20 25	—	—

OBSERVATIONS OF STANDARD VELOCITY STARS.—In accordance with the international cooperative scheme for the regular determination of the radial velocities of ten standard stars, Mr. Slipher, using the Lowell spectrograph, observed the following stars during the summer and autumn of 1905. γ Cephei was substituted for α Crateris—the tenth star of the standard list—because the latter was too near the sun during the period covered by the observations. The mean velocity obtained by Mr. Slipher for each star is also given below:—

Star	No. of plates	Velocity
α Arietis	3	−14·3 km.
α Persei	5	− 2·5 ,,
β Leporis	3	−13·0 ,,
β Geminorum	3	+ 3·3 ,,
α Boötis	5	− 4·7 ,,
β Ophiuchi	3	−11·3 ,,
γ Aquilæ	3	− 2·1 ,,
ε Pegasi	4	+ 6·1 ,,
γ Piscium	3	−11·3 ,,
γ Cephei	3	−41·9 ,,

Mr. Slipher describes the equipment and the method of working, and directs attention to the fact that the high altitude of the Lowell Observatory and the prevalent transparency of the sky contribute greatly to the light-power of the equipment. Satisfactory spectrograms of α Persei were obtained in 15 minutes, whereas with the Yerkes equipment the shortest exposure on this star was 30 minutes (*Astrophysical Journal*, No. 5, vol. xxii.).

A FIRE NEAR THE MOUNT WILSON OBSERVATORY.—From No. 1, vol. xiv., of *Popular Astronomy,* we learn that a serious fire took place on Mount Lowe, near to Mount Wilson, on December 9, 1905. Fortunately, no damage appears to have been done to the observatory equipment, but the heat was so intense that Prof. Hale, fearing that some of the more delicate parts of the apparatus might be injured thereby, had them removed and sunk in the observatory reservoir until the danger was past.